

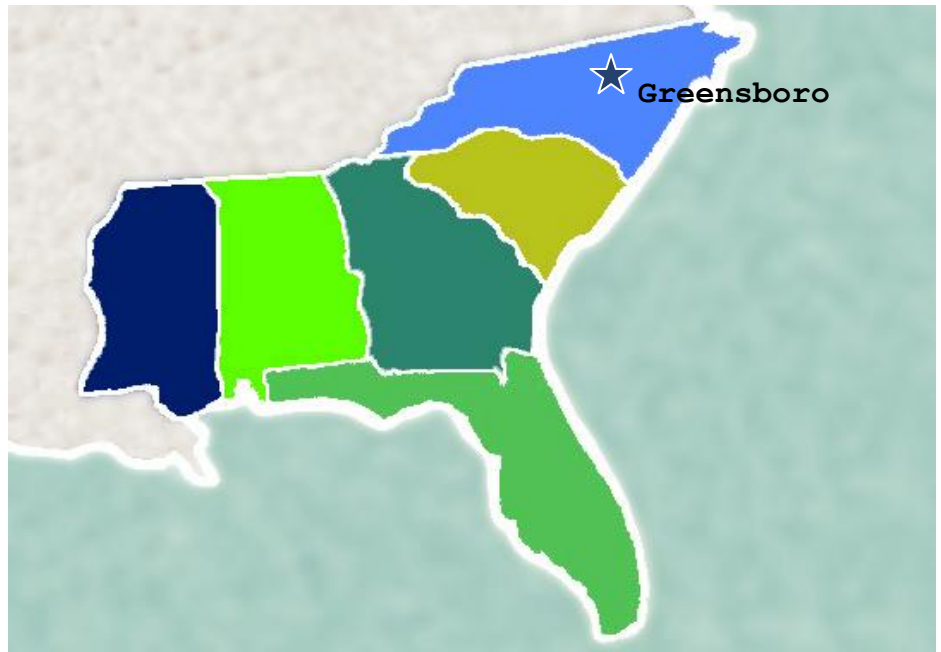
REGIONAL EDUCATIONAL LABORATORY

SOUTHEAST ~ SERVECenter

EVIDENCE BASED EDUCATION REQUEST DESK

OUR GOAL

To assist educators and policymakers in their efforts to apply the evidence base to decisions about policies, programs, and practices they encounter.



REQUEST:

Provide information on Tier II (Targeted Interventions) Math Interventions.

RESPONSE

Most of the literature on Response to Interventions (RtI) has focused on reading instruction and interventions, but there is a growing literature on RtI focused on math instruction. Recently, there have been several reports on what matters in mathematics instruction and effective math interventions (Slavin & Lake, 2007; Slavin, Lake, & Groff, 2008; What Works Clearinghouse). Yet, there is little that speaks to specific interventions in Tier II. Most authors state that the reason behind this is that very few math interventions are labeled as Tier II interventions, although they are designed for students struggling in mathematics.

As in reading, your screening will determine which students need intensive instruction and the type of intervention needed. If there is only a small group of students that needs additional instruction, then you probably won't be looking to change your whole curriculum; you will be looking for supplementary interventions. Once you know what type of intervention you are looking for, then the What Works Clearinghouse and Best Evidence Encyclopedia can provide more details on the effectiveness of the interventions.

The table below is just one example of laying out the interventions you are exploring. It provides your planning team a quick glance at the intervention, related research studies, and its evidence of effectiveness. Another table could point out the features of the interventions for a quick comparison (see Gersten et al., 2009; Table D1, p. 69—full reference is listed below under 'Resources').

If you have any questions regarding this document, please contact the
REL-SE, 1-800-755-3277 or RELSoutheast@serve.org

RtI Tier II Intervention	Elementary	Middle School	High School	Examples of Research Studies	Evidence of Effectiveness
Accelerated Math	x				Limited Slavin, R. E., & Lake, C. (2007, February). Effective programs in elementary mathematics: A best evidence synthesis. <i>Review of Education Research</i> 78 (3), 427 – 515.
Tutoring					Moderate Slavin & Lake (2007) reference the research by Lynn Fuchs
Tutoring w/ Hot Math & schema broadening instruction	x			Fuchs, L. S., Fuchs, D., Craddock, C., Hollenbeck, C. L., Hamlett, C. L., & Schatschneider, C. (2008). Effects of small-group tutoring with and without validated classroom instruction on at-risk students' math problem solving: Are two tiers of prevention better than one. <i>Journal of Educational Psychology</i> , 100 (3), 491–509	
Tutoring w/Math Facts	x			Fuchs, L. S., Compton, D. L., Fuchs, D., Paulson, K., Bryant, J. D., & Hamlett, C. (2005). The prevention, identification, and cognitive determinants of math difficulty. <i>Journal of Educational Psychology</i> , 97 (3), 493 – 513.	

Resources

Best Evidence Encyclopedia (BEE): <http://www.bestevidence.org>

- Effective Programs in Middle and High School Mathematics: A Best Evidence Synthesis
- Effective Programs in Elementary Mathematics: A Best Evidence Synthesis

Center on Instruction: <http://www.centeroninstruction.org>

- Bryant, D. P., & Bryant, B. R. (2007). *Three-Tier Mathematics Intervention Model* presentation. - <http://www.centeroninstruction.org/files/SERP-MathAIR1-07ppt.pdf>
- Newman-Gonchar, R., Clarke, B., & Gersten, R. (2009). *A summary of nine key studies: Multi-tier intervention and response to interventions for students struggling in mathematics*. Portsmouth, NH: RMC Research Corporation, Center on Instruction.

Institute of Education Sciences: <http://ies.ed.gov>

- Regional Educational Laboratories
- What Works Clearinghouse
- IES Practice Guides
 - Gersten, R., Beckmann, S., Clarke, B., Foegen, A., Marsh, L., Star, J. R., & Witzel, B. (2009). *Assisting students struggling with mathematics: Response to Intervention (RtI) for elementary and middle schools* (NCEE 2009-4060). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education. Retrieved from <http://ies.ed.gov/ncee/wwc/publications/practiceguides/>

National Center on Response to Intervention: <http://www.rti4success.org>

What Works Clearinghouse: <http://ies.ed.gov/ncee/wwc/>

References

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- Fuchs, L. S., Fuchs, D., & Prentice, K. (2004) Responsiveness to mathematical problem-solving instruction: Comparing students at-risk of mathematics disability with and without risk of reading disability. *Journal of Learning Disabilities*, 37 (4), 293-306.
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- Fuchs, L. S., Seethaler, P. M., Powell, S. R, Fuchs, D., Hamlett, C. L., & Fletcher, J. M. (2008). Effects of preventative tutoring on the mathematical problem solving of third-grade students with risk for math and reading disabilities. *Exceptional Children*, 74 (2), 155-173.
- Gersten, R., Chard, D., Jayanthi, M., Baker, S., Morphy, S. K., Mellard, D. F., McKnight, M. A., & Deshler, D. D. (2007). *The ABCs of RTI: Elementary school reading, a guide for parents*. Lawrence, KS: National Research Center for Learning Disabilities.
- Slavin, R. E., Lake, C., & Groff, C. (2008). *Effective programs in middle and high school mathematics: A best evidence synthesis*. Baltimore, MD: Johns Hopkins University, Center for Data-Driven Reform in Education.

Methodology

In order to answer this request, we looked in several databases: Wilson Web (UNCG Education Database), ERIC, PsycINFO, and PsycArticles. In addition, we also searched Google using the phrases “RtI,” “math intervention,” and “Response to Interventions.” We also searched the websites of the following organizations: Best Evidence Encyclopedia, RtI Action Network, National Council of Teachers of Mathematics, National Center on Response to Intervention and the Center on Instruction. The years of our search were 2004 through April 2009. Our search began in 2004 because that is when the reauthorization of the Individual with Disabilities Education Act (IDEA) allowed RtI to be used as a component of determining special education eligibility.



We provide research based information on educational initiatives happening nationally and regionally. The EBE Request Desk is currently taking requests for:

- Research on a particular topic
- Information on the evidence base for curriculum interventions or professional development programs
- Information on large, sponsored research projects
- Information on southeastern state policies and programs

For more information or to make a request, contact:

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